

37. Notes on East African Birds (chiefly nesting habits and stomach contents) collected 1915-1919. By ARTHUR LOVERIDGE, F.E.S., C.M.Z.S.

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The following notes are based on a collection of about a thousand skins representing 51 families, 216 genera, and 402 distinct species, besides several hundred eggs; it does not include a collection made in Uganda, but refers to those from the coastal colonies—Kenya Colony (then B.E.A.); Tanganyika Territory (then G.E.A.); Portuguese East Africa; Natal.

No object would be served in publishing the whole list of species, and the following field-notes selected from my diary relate to the nesting habits, stomach contents, European migrants, and other items of general interest.

The principal localities mentioned in the following pages are :—

Kenya Colony.—Bissel, Fort Hall, Frere Town, Kabete, Kedong Valley, Kijabe, Lake Naivasha, Nairobi, Voi.

Tanganyika Territory.—Dar-es-Salaam, Dodoma, Kongwa, Longido West, Makindu (Msiha River), Morogoro, Mpwapa, Mt. Meru, Ngari Mtoni, Soko Nassai, Tabora, Uluguru Mts.

Portuguese East Africa.—Lorenzo Marques, Lumbo (mainland opposite Mozambique).

Natal.—Durban.

I should like to take this opportunity of thanking Dr. V. G. L. van Someren, Dr. Hartert, and Mr. Arthur Goodson for undertaking the identification of many of the specimens. To Dr. Hartert, I am also indebted for his kindness in correcting proofs and seeing these notes through the press.

Some half-dozen new species or races contained in the collection have been described by Dr. van Someren.

NECTARINIA REICHENOWI Fisch.

This Sun-bird is particularly associated in my mind with the red inflorescences of *Leonitis leonurus*, of which it is particularly fond. Clinging to the stem of one of these plants, the bird rapidly runs around the circlet of red flowerlets, in quick succession driving its beak into the tube-like bases of the flowers and passing on to the next till that particular plant is exhausted (Kijabe, 26. vi. 15).

CHALCOMITRA SENEGALENSIS INÆSTIMATA Hartert.

The species has a very wide distribution in East Africa, having been met with in strikingly different types of country. In captivity it does well on sugar slightly moistened; to this I added

a few ants, for without such additional insect diet they do not thrive for long. It was a surprise how quickly the bird took to this form of food, sitting on the edge of the bowl and sipping at the mixture, with occasional intervals in which it gave vent to the characteristic whistling chirp. I have seen the Scarlet-breasted Sun-bird hovering in the air and taking termites on the wing (Morogoro, 10. iv. 18).

Nest with one egg (Morogoro, 19. ii. 17); nest with two eggs (Morogoro, 13. iii. 17); building (Morogoro, 9. xii. 17).

CHALCOMITLA VERREAUXI A. Sm.

Verreaux's Sun-bird was found nesting on the Bluff at Durban (21. xii. 14); the two eggs were of a chocolate colour.

ANTHREPTES COLLARIS Vieill.

The Natal Collared Sun-bird also found nesting on the Bluff with two eggs (Durban, 21. xii. 14).

MOTACILLA VIDUA Sundev.

The East African Pied Wagtail is one of the sweetest songsters in the country, and quite rivals a canary. Its favourite perch when singing appears to be the ridge of a roof; in such a situation I have seen three or four of these wagtails in company with a row of swallows (Morogoro, 14. ii. 17).

A nest containing three hard-set eggs was found on the brink of a waterfall at Kabete—such a waterfall and surrounding scenery as one might find in the Vale of Neath (Kabete, 26. v. 15).

MOTACILLA FLAVA CAMPESTRIS Pall. (*cf.* Ibis, 1921, p. 666).

During the month of November 1918 large flocks of Yellow Wagtails were to be met with at Dar-es-Salaam. They were particularly plentiful on the land near the sea-front, where they ran at the heels of the transport oxen which were pastured there.

MACRONYX CROCEUS Vieill.

A nest of the Yellow-breasted Pipit containing a single egg which disappeared the following day (Nairobi, vii. 15).

SERINUS STRIOLATA AFFINIS Richmond.

Nest with three eggs (Kabete, 24. v. 15).

PASSER GRISEUS SUAHILICUS Neum.

A nest of the Swahili Grey Sparrow containing three eggs in the masonry of a house. Both nest, eggs, and situation similar to those of the English Sparrow (Kongwa, 25. iv. 17).

HYPOCHERA ORIENTALIS Reichw.

Found a freshly-killed male lying dead in the bush without any visible signs of violence; one leg was missing from the knee,

but this was evidently an old injury, as it had long since healed. Whilst examining it, my attention was attracted by the demonstrations of a Shrike (*Harpolestes senegalensis orientalis*), and a short search discovered its nest with the hen bird sitting on the clutch. Was it possible that the Shrike had killed the Weaver, which had been unable to escape owing to its crippled condition? (Morogoro, 29. iii. 17).

COLIUSPASSER ARDENS TROPICUS Reichw.

Nests of the Red-collared Whydah with three eggs in each were found on 9. iv. 17 and 1. vi. 17, and many more between those dates, the species being quite common at Morogoro (Morogoro, 1917).

COLIUSPASSER LATICAUDA Licht.

Many nests were found on the plains at Nairobi between 22. v. 15 and 5. vi. 15, containing three eggs, which comprises the clutch. Two clutches of three eggs were found at the same place on 7. v. 19. (Nairobi).

COLIUSPASSER EQUUS Hartl.

Four nests with two eggs in each were found between 13 & 23. iii. 17. It would appear that two is often the full clutch. The nest is similar to those of other members of the genus. At first a framework in the shape of an oval is made between two or more stout grasses at a height of 3 feet from the ground, or thereabouts. A loosely-built domed grass net is woven on to the framework, and the eggs laid in the bottom of the nest without lining of any kind (Morogoro, 1917).

COLIUSPASSER JACKSONI Sharpe.

The males of Jackson's Whydah and the foregoing species dance round and round the female as she sits on a tuft of grass, the object of the dance being to display the extraordinary long black tail-feathers which are put on for the breeding season. The dance is really a hop, and it is quite ridiculous to see the birds appearing and disappearing as if shot into the air by some unseen spring. Round and round goes the bird, till the grass is trodden down in the vicinity of the central tuft to such an extent that one could hardly credit that it was the work of so small a creature. Doubtless they resort to the same spot day after day. The dancing rings, about two feet in diameter, are common enough, and become almost bare of grass. The lengthy tail seems to hamper the bird in flight as it leaves the grass or bushes; occasionally one is seen with its tail at right angles to its body as it sits on a branch or briar. Unwieldy as they appear, attempt to catch one, and you always find you just fail; at the eleventh hour the owner of the tail manages to get under way (Nairobi, 1. v. 9).

PYROMELANA XANTHOMELANA Rüpp.

Nesting in company with *P. nigroventris* and *P. flammiceps*. Nests containing three eggs each found on 20.iii.17 and 5.iv.17 (Morogoro, 5.iv.17).

PYROMELANA NIGRIVENTRIS Cass.

Nests of the Black-bellied Bishop-bird with full clutches of three eggs were found from 14.ii.17 to 30.iii.17. So common were these nests in places, that as many as thirty could be found in about the same number of square yards. The most favoured locality where I met with them was on the edge of a belt of dense thorn-bush scrub at Morogoro. Sharp spear-grass mingled with other kinds grew rank to one's shoulders, whilst scattered thorn-bushes obscured by the luxuriant vegetation waited to entangle the feet of the unwary. Several species of Yellow Weavers flew about in the trees from which their pendent nests were hung; below were the agitated Bishop-birds, whose scarlet-and-black plumage showed to best advantage against the rich green of the freshly-grown grass. Many other birds frequented the spot, and joined their voices to the tumult which greeted the intruder. The nests of the Bishop-birds were so similar to those of the *Coliuspasser* just described that a fresh description is unnecessary (Morogoro, 14.ii.17).

On one occasion (20.ii.17) when visiting this spot, I found a dead female Black-vented Bishop-bird sitting upon three eggs containing live young! A few ants were crawling about the eyes and mouth of the dead bird, but it was so fresh that I was able to leave it twenty-four hours before skinning. Seventeen days later I examined the same nest and found two more eggs in it (9.iii.17), so it appeared as if the male had installed another mate in the nest. The death of the bird may also be explained by the presence of a Green Mamba (*Dendraspis angusticeps*), which was lying sunning itself on a thorn-bush not 20 feet away. It is possible to suppose that it had bitten the bird, which was just able to flutter back to its home before succumbing to the effects of the poison (Morogoro, 9.iii.17).

PYROMELANA FLAMMICEPS Swains.

The eggs of the Fire-crowned Bishop-bird are the same hedge-sparrow-egg blue as the preceding species, but are readily distinguishable by their slightly larger size. Nests containing full clutches of three eggs were found between 23.iii.17 and 5.iv.17 (Morogoro).

QUELEA INTERMEDIA Reichw.

Nest with three eggs (Nairobi Plains, 7.v.19).

QUELEA CARDINALIS Hartl.

Four nests of the Cardinal Finch containing three eggs each were found (Nairobi, 7 & 8.v.19).

SPERMESTES sp., either CUCULLATA Swains. or SCUTATA Heugl.

Green-headed Mannikin. Two and four eggs respectively (Kabete, 24. v. 15); two eggs (Soko Nassai, 22. v. 16); one egg (Morogoro, 30. iv. 17); two eggs (Nairobi, 7. v. 19).

I have frequently found the hen-birds sitting on their eggs in the deserted nests of other species of Weaver, which they do to save themselves the trouble of building. A nest was situated in a very exposed thorn-bush on an exposed hillside at Kabete. Two of the eggs were perfectly fresh and two were perfectly bad, so much so that they exploded when pricked with a pin; the fifth egg was empty, with a very small hole in its side such as might have been made by a bird's claw, and the contents removed by ants. Another of these weaver-finches was sitting on its eggs in the nest of a weaver (*Ploceus xanthops*?) which had been built in sedges growing in the waters of a swamp at Soko Nassai; yet another had adopted the retort-shaped nest of another species of *Ploceus*, which was situated in a banana-palm, about 10 feet from the ground, growing on the banks of the river at Morogoro.

URÆGINTHUS BENGALUS ANGOLENSIS Linn.

One egg of the Blue-breasted Waxbill in a nest (Lumbo, 28. x. 18).

URÆGINTHUS NIASSENSIS Reichw. Niassa-land Bengali.

On the outward voyage to East Africa, when at Lorenzo Marques, I made a note in my diary that a small blue bird had built its nest in a thorn-bush just above that of a wasp, and speculated whether it had been done for protection. I forgot the incident entirely until indexing my notes three years later. The species was probably *U. b. angolensis*. Two years later, at Morogoro, I found many nests of *U. niassensis*. In nineteen cases out of twenty these were built over the paper nests of wasps, so that one could not approach one's hand through the thorns before the wasps began to threaten and fly round. I watched a pair of these birds building over a wasp's nest, and so am certain that it is not the wasps which build beneath the bird's nest for the sake of shelter from the rain, though doubtless the arrangement is mutually beneficial. At Mombasa, I have seen the same thing with *U. b. brunneigularis*, but at Nairobi, where one of these charming little blue weavers is very common, I never recollect having seen its nest above a wasp's. The same at Lumbo, where *U. b. angolensis* was very abundant and its old nests were to be seen in almost every thorn-bush.

I was very interested in coming across this paragraph in Belt's 'The Naturalist in Nicaragua.' "A yellow and brown flycatcher builds its nest in these bushes, and generally places it alongside that of a banded wasp, so that with the prickles and the wasps it is well guarded" (p. 222).

Five, four, and two eggs were found in three nests on 13. iii. 17, and three eggs in a nest on 30. iii. 17 (Morogoro)

LAGONOSTICTA SENEGALA, subsp. n.

The birds exhibit a preference for the thatch of grass huts for a nesting-site, and make themselves perfectly at home, paying but little attention to the human occupants of the place; in one such case the favourite perch was the towel-rail. This nest contained three eggs and a parasitic egg slightly larger; the male bird was sitting on the lot (Morogoro, 21. vi. 17). Another nest was found to contain four eggs on 30. iii. 17.

These charming little birds, which may often be seen in company with the blue *Uraeginthus* hopping about on paths at one's very feet, have been rather aptly christened "Animated Plums" by Sir Frederick Jackson, on account of the rosy or plum colour of the males of most of the species. Just before writing up these notes, I was watching a pair sitting side by side on the bough of a fir-like tree; they had sidled up to one another till they could get no closer. The hen was preening the head plumage of the male, and afterwards touched beaks, making as pretty a little group as one might wish to see.

PYTELIA MELBA KIRKI Shelley.

Found a nest with three pure white eggs in a very low bush. The nest was very similar to that of *Uraeginthus*, being built of flowering grass heads loosely put together, with a tubular entrance in one side (Morogoro, 9. iv. 17). The species is often to be found hopping about after dusk, feeding long after other birds have gone to roost for the night (Morogoro, 23. vii. 17).

AMBLYOSPIZA UNICOLOR Fisch.

Builds a finely-woven nest attached to reed-stems over water; such a nest containing three eggs was found (Morogoro, 20. iii. 17).

PLOCEUS REICHENOWI Fisch.

Clutches consist of two or three eggs; several such were found between 20. v. 15 and 20. vi. 19. One of these birds fell from a tree just as an acquaintance of mine was passing beneath. It was still warm when brought to me and not a feather disarranged. The only signs of violence were blood oozing from the nostrils and the beak full of clotted blood. On skinning, I found extensive hæmorrhage around the eyes and ears, in intestines, lungs, and about the heart. It appeared to me to have died from the poison of a venomous snake, probably the Boomslange (*D. typus*) (Nairobi, 18. ix. 19).

PLOCEUS NIGRICEPS Layard.

Some scores of nests of the Black-headed Weaver were examined at Morogoro between 13. iii. 17 and 11. iv. 17, and found to contain pure white eggs, white eggs with red blotches, pure blue eggs, and blue eggs with red blotches; the usual number for a clutch appeared to be two; three, however, was not uncommon. A bird which I took to be this species was engaged in stripping the leaves of a Bussu Palm into threads. It

accomplished this by flying to a frayed edge and taking this in its beak, flying slowly down with it (Morogoro, 20. xii. 16).

One of the Black-headed Weavers surprised me to-day by dodging after a Praying Mantis in the manner of a flycatcher. Almost immediately after catching the insect, however, it dropped it; presumably owing to the mantis making good use of its fore-legs (Morogoro, 7. xii. 17).

PLOCEUS SPEKEI Heugl.

Out of a large colony of freshly-made nests found on the plains and dependant from a thorn-tree, only one was found to contain anything, and that but a single fresh egg (Nairobi, 10. vii. 15).

ORIOLES BRACHYRHYNCHUS LÆTIOR Sharpe.

The note of the Black-headed Oriole is as lovely as its plumage. On a hot afternoon, when all is still, you may be surprised by suddenly hearing a liquid cry of "tokio" ringing out very clearly quite close to you. You look in the direction from which the sound came and hear it again, but perhaps behind you. The bird appears to be aware that its cry is likely to draw attention to it, and so frequently after giving a call it slips away to some fresh perch, where it is concealed by the foliage. The natives say that it calls "ndugu, ndugu," which is Kiswahili for "brother, brother." By imitating the call, I have frequently been successful in attracting the bird to the very tree beneath which I was waiting (Morogoro, 7. vii. 17).

AMYDRUS MORIO RÜPPELLI Verr.

Rüppell's Red-winged Starling and *A. tenuirostris* go about in the same flocks, for both species fell to one shot from a gun when they were pillaging fruit-trees in the Uluguru Mts. *A. walleri* was taken later near the same place. A solitary bird was shot on the lower slopes of the mountain near Morogoro, where they very rarely come; its neck was stripped bare of feathers, which gave it so peculiar an aspect that I quite failed to recognise it till shot. The only explanation I could think of was that it had been snared at some time or had been worried by lice and scratched them off; the skin was, however, uninjured. At Fort Hall, *A. m. rüppelli* made such a noise on the roofs and gutters of the houses that it was a perfect nuisance; they seemed to have adapted themselves to the habitations of man as much as the English Starling.

SPREO SUPERBUS Rüpp.

The White-banded Glossy Starling will build in holes in cliffs or trees, or make a great untidy nest in thorn-bushes. A pair were seen carrying food to their chirping young in a cliff-fissure in the Kedong Valley (vii. 15). A nest containing young was found in a hollow tree at Longido West (30. i. 16). Another nest with young was found in a thorn-tree at Dodoma (20. xii. 18), whilst nests with bright blue eggs were found at Mpwapwa (30. iv. 17).

CORVUS SCAPULATUS Daud.

Pied Crow. At Lumbo, I found a broken egg-shell in a cultivated patch, and on enquiry found that the native proprietor had pulled the nest down from a cocoanut palm; after this I searched and found a good many nests, one containing three very large young ones and another some newly-hatched (Lumbo, x. 18).

DICRURUS AFER LUGUBRIS Rüpp.

At Government Farm a White-shouldered Crow was giving vocal expression to its feelings after the manner of its kind, cawing hoarsely in the midst of a field of stubble. From a nearby mango-tree, stooping like a hawk, came a Black Drongo, and went straight for the croaker, who took to wing at the last moment. Its more active assailant landed on its back when about 40 feet from the ground and gave the Crow a good pecking, then, clearing off, it returned triumphantly to its perch. I searched for, but found no signs of a nest; possibly the Drongo had an ear for music and disapproved of the raucous cries (Morogoro, 20. xii. 16).

LANIUS COLLARIS HUMERALIS Stanley.

This Shrike, which is very common at Nairobi, breeds all the year round, for at any season the young birds may be seen on the telegraph wires clamouring for food with shivering wings. Nests with eggs were found on the following dates:—One (13. i. 15); two (22. v. 15); four (1. vi. 15); three (5. vi. 15). Nearly all the nests were built in thorn-trees. There is no lack of thorns for their larders, and grasshoppers appear to be the most common food; huge caterpillars were also found, whilst on one occasion a small frog (*Rappia* sp.) was found impaled on the point of an aloe. A friend told me that he once found a small blue weaver (*Uraginthus* sp.) impaled on a thorn and still alive. With diabolical ingenuity the Shrike had twisted other thorns across in front to prevent the bird freeing itself (Nairobi, 1. vi. 15).

LANIARIUS SUBLACTEUS Cass.

A nest of the Lesser Pied Shrike with one egg (Lumbo, 28. x. 18).

HARPOLESTES SENEGALA ORIENTALIS Cab.

The Greater Red-winged Bush-Shrike was found nesting on the 26th and 29th of March, 1917. In both instances only two eggs were laid. The nests were very shallow, composed of a base of small twigs and rootlets with a lining of much finer roots. They were both in bushes, one being at a height of 4, the other 5, feet from the ground (Morogoro, 29. iii. 17). Nest with young about 7 feet from the ground (Morogoro, 4. iv. 17).

MALACONOTUS POLIOCEPHALUS BLANCHOTI Steph.

Chestnut-breasted Thick-billed Shrike. One of these beautiful Shrikes was seen sitting on its nest in the fork of a rubber sapling which had sprung from the stump of a felled rubber-tree. The nest was at a height of 18 feet from the ground, and was slightly hidden by a few withered yellow leaves, but all the surrounding trees in the plantation were bare of foliage. The eggs, of which there were three in the nest, were slightly larger than an English Blackbird's, and were thickly freckled with brown and faint purple on a white ground. One contained a chirping chick, already breaking from its shell, and this I left; the other two were unfertile and easily blown (Morogoro, 2. xi. 17).

EUROCEPHALUS RÜPPELLI Reichw.

The White-headed Shrike was found building a very beautiful and solid nest on the tip of a branch of mimosa-thorn quite 12 feet from the trunk and perhaps 9 feet from the ground (Kongwa, 25. iv. 17).

CRATEROPUS KIRKI Sharpe.

A nest of this species was taken on a mimosa bough about 10 feet from the ground. It held three eggs of Kirk's Babbling Thrush and one slightly larger egg of a Cuckoo (*Coccytes cafer*); all the eggs were uniform greenish-blue (Lumbo, 22. x. 18). A cock-bird was found sitting on three eggs (Morogoro, 23. iii. 17).

PYCNONOTUS BARBATUS MICRUS Oberhols.

The Yellow-vented Bulbul breeds during the greater and lesser rains, if not all the year round. Many nests were found at Morogoro on the following dates:—Two young ones in a nest in boughs of a flamboyant (8. xii. 17); two eggs and three eggs in a similar situation (14. xii. 17); young in a nest in a bunch of bananas in palm (16. i. 18); two eggs (26. iii. 17); and one egg (11. iv. 17).

After a night of heavy rain, I witnessed a somewhat unusual sight. Not 15 yards from where I was standing, termites were flying from their nest-holes. No less than seven species of birds were engaged in catching them, of which five were seed or fruit eaters. The birds were two Weavers (*Lagonosticta senegala* subsp.), two Waxbills (*U. niassensis*), one Finch (*S. icterus barbatus*), one Sparrow (*P. g. suahelicus*), two Pied Wagtails (*M. vidua*), and two of these Bulbuls, whilst, to add to the colour-effect, a dainty Scarlet-breasted Sun-bird (*C. s. inæstimata*) hovered above and captured the termites on the wing (Morogoro, 10. iv. 18).

PYCNONOTUS TRICOLOR PALLIDUS Roberts.

Very abundant at Lumbo. Five nests, each containing two eggs, were found on 28. x. 18.

ANDROPADUS INSULARIS Hartl.

Many nests of the Coast Olive Bulbul were also found, and five clutches of two eggs each taken; two would appear to be the normal number for a clutch. The eggs are white, scribbled and blotched with brown and faint purple at the larger pole, in some cases all over. The nest is small and shallow, composed of twigs, and lined with fine rootlets (Lumbo, 28. x. 18).

PRINIA MYSTACEA TENELLA Fisch.

Nests of the White-eyebrowed Grass-Warbler, with three eggs in each, were found on 22.iii.17, 5.iv.17, and 21.vi.17 at Morogoro.

SYLVIETTA WHYTEI Shelley.

This Warbler constructs a most beautiful purse-like nest, which it hangs from the branches of a thorn-bush. Three nests with eggs were found at Lumbo on 28.x.18, and a bird was sitting on two eggs at Morogoro on 28.xi.18. Two appears to be the normal clutch.

CISTICOLA LUGUBRIS Rüpp.

A deserted nest of the Brown-headed Grass-Warbler, containing one egg, was found; from the interior roof of the nest depended the paper nest of a wasp, whilst a small company of solitary bees had their comb in the bottom (Ruaraka River, nr. Nairobi, 11. x. 19).

CISTICOLA ERYTHROPS Hartl.

A nest of the Rufous-fronted Grass-Warbler containing three eggs (Nairobi, 5. vi. 15).

CICHLADUSA GUTTATA Heugl.

The Spotted-crested Ground-Thrush is a very sweet singer, generally holding forth from thickets just before sunset; it does not expose itself when singing. The mud nest is built upon a branch or, more rarely, in a fork; it is very deep. The eggs are of a uniform blue colour. A broken egg beneath a nest on 12. i. 17; in another nest young on 22. ii. 17; two eggs in a nest found on 4. iv. 17 and two more in one on 6. iv. 17 (Morogoro, 1917).

TCHITREA CRISTATA SUAHILICA Reichw.

I have seen this Paradise Flycatcher hovering up the trunk of a tree, picking the insects off the bark whilst on the wing. It constructs a beautiful cup-shaped nest, which it covers with lichen; one such was attached to some epiphytes at a height of 8 feet above a mountain torrent, and contained young (Uluguru Mts., 28. xi. 18).

RIPARIA RUFIGULA Fisch.

Nest of the Rufous-throated Rock-Martin, containing three eggs, attached to the wall of a cattle-shed (Kabete, 6. v. 18).

HIRUNDO SMITHI Leach.

A nest of the Wire-tailed Swallow with three eggs (Morogoro, 23. vii. 17); with two eggs and apparently deserted (Frere Town, 1. vii. 19). At Morogoro on 14. ii. 17, I made a note that thousands of swallows had been gathering on the telegraph wires for the past few days, apparently for migration.

HIRUNDO PUELLA UNITATIS ScL.

The Smaller Stripe-breasted Swallow was associated with the preceding species in the assemblage for migration at Morogoro (14. ii. 17). A dead bird was found upon her nest, which contained three eggs, one of which was plain white (Kongwa, 25. iv. 17).

Along the river these birds nested against the rocks, but almost every house in Morogoro had its nest with the typical long entrance passage of mud. The birds are most persistent, and will continue to build in rooms, where they are not welcome and where their nests are knocked down again and again. The earliest date at which I found a nest at Morogoro was on 25. vi. 17, and the latest 15. viii. 17. Three eggs is the invariable clutch.

On 23. vii. 17, I found a nest with no entrance tunnels, and broke a small hole into it, but found no eggs. On again examining it a few days later, there were three eggs, and the hole I had made had been neatly finished off with mud to form a window or third outlet. In one instance I opened a nest carefully, and found three eggs; two were white with faint reddish speckles and the third pure white (23. vii. 17); these I took. On 1. viii. 17, I again visited the nest; the small hole I had made had been repaired, and three eggs again laid of which one only was white. On 15. viii. 17 a third visit was made, and again three eggs found of which one was white. A fortnight later the hole had been again repaired, and the bird was sitting. I did not molest her further, as such persistence deserved its reward, and it was the variation in the clutches that caused me to rob her.

Calling on an English sergeant on one occasion, I found him nursing one of these swallows, which had a broken wing; he was endeavouring to feed it on crumbs and meal. He had, it transpired, thrown a stone at the bird as it sat chirping on the roof-ridge: to his surprise and grief he hit it, and was now endeavouring to restore it to health by a vegetarian diet!! (Morogoro, 27. i. 17).

HIRUNDO EMINI Reichw.

Emin's Swallow was only once met with at Morogoro (31. vii. 17) when evidently on migration, three birds in poor plumage being seen. A pair of these birds, after starting the foundations of twenty-one nests on the roof-rafters of my office verandah,

appear to have at last selected a spot exactly above the most frequented place—*i. e.*, between the stairs and door (Nairobi, 8. vi. 19).

15. vi. 19. The birds sat with dabs of mud in their beaks, uttering their peculiarly sweet metallic notes. The nest is about finished.

22. vi. 19. During the week the entrance tunnel has been under construction, the work proceeding very slowly.

28. vi. 19. The birds appear to have gone away.

1. viii. 19. The weather has been very cold and dull during the past month, and the swallows have only twice put in an appearance, when they added a few feathers to the nest.

7. viii. 19. Felt in the nest, and there appeared to be no lining worth mentioning.

14. viii. 19. Nest with lining of grass and feathers, and one broken egg *with a streak of red* in it, lying on the ground, having been pulled down by a ruthless native. When did the egg get incubated? Is it possible I did not feel to the bottom of the nest on the 7th inst.?

CYPSELUS AFFINIS Hardw.

The Indian Swift is extraordinarily abundant at Frere Town, where great numbers of them fly about, screaming, towards evening; in fewer numbers they are to be seen at most hours of the day. They build along the cliffs or under the eaves of verandahs. The nests are constructed of feathers and straw, so cemented together with mucilage that they have the strength and consistency of cardboard. A large number of nests were examined on 1. vii. 19; ten of these held young, three held incubated eggs whose clutches numbered four, four, and three respectively. One nest had a single fresh egg in it.

A nestling was picked up at Morogoro, 29. x. 17.

TACHORNIS PARVUS Verr.

My notes on the curious nesting habits of the Lesser Palm-Swift have already been published*. On July 17th, 1917, I revisited the colony which were nesting in the cocoanut-palms (not banana-palms, which was printed in error). One nest was completely upside down, having been built that way; the bird was brooding two eggs which were nearly ready to hatch. Another nest had a bad egg which had a small hole in the top of it, probably made by a bird's claw. Another held newly-hatched young; yet another was occupied by downy young. In one instance both birds were on the nest and appeared to be paired. Some nests were unfinished, possibly abandoned.

On 4. ii. 18, I again visited the spot; in one nest there were two fresh eggs, several hard-sat clutches in others, newly-hatched and half-grown young in the rest.

* "Observations on the Nesting Habits of the Palm Swift etc." Mem. Proc. of the Manchester Lit. & Phil. Soc. vol. lxi. pt. ii. (1919).

CAPRIMULGUS EUROPEUS Linn.

The European Nightjar was collected at Morogoro (24. ix. 17).

CAPRIMULGUS FOSSEI MOSSAMBICUS Hartl.

A single egg, perfectly fresh, was picked up and brought to me by a native. A good series of birds were collected (Lumbo, 28. x. 18).

CORACIAS GARRULUS Linn.

The European Roller on migration was met with on several occasions. An immature female was shot at Nairobi (29. x. 15). Large numbers of them were seen at Longido West (ii. 16). Specimens were obtained from a flock at Morogoro (10. xii. 17).

CORACIAS CAUDATUS Linn.

The Lilac-breasted Roller was seen clinging to a blasted tree just below a suitable nesting-hole. On both occasions when I approached the tree I was made the subject of very noisy demonstrations, so I concluded that they were nesting in the hole (Bissel, 20. xii. 15).

A pair of birds were obtained at Kongwa (23. iv. 17) in very fine plumage, and during that year they were extraordinarily abundant at Morogoro. In the stomachs of several specimens were found many nauseous and warningly coloured grasshoppers (*Zonocerus elegans* Thunb.).

Some three pairs lived in the neighbourhood of the camp at Lumbo. One pair frequented a large baobab-tree, which served as a jumping-off ground for their little excursions to rag the soberly-garbed crows, which they chivvied mercilessly about. After these little excursions, one or both of them would soar higher and higher above their favourite tree, and then come tumbling down in the most extraordinary way, more like a winged bird that is making an effort to recover itself than a healthy one. Towards October 1918, I saw one of the birds outside a hole near the top of the baobab, but thought climbing out of the question. At the end of the month a native brought me a Roller, which he told me he had caught on its nest in a hole in a tree; it was sitting upon two eggs which he had broken. I refused to purchase the bird, but from the information that he gave me I concluded that it was from this baobab that he obtained it, and, if so, this would explain their energy in driving off the crows. These birds were extremely shy of approach, whilst those met with at Morogoro were quite the reverse.

MELITTOPHAGUS BULLOCKOIDES Smith.

A colony of some fifty White-fronted Bee-eaters was found in an artificial pit some 20 cubic feet in size; the nesting-holes had been excavated in the sides of the pit (Ngari Mtoni, nr. Arusha, 17. iv. 16).

MEROPS APIASTER Linn.

A single pair, in very worn plumage, of the European Bee-eater were obtained at Morogoro (17. x. 17).

LOPHOCEROS DECKENI Cab.

A male and immature female Von der Decken's Hornbill were shot on 1. vi. 17 at Morogoro. The male had two large complete mantids in its stomach, whilst the female had only beetles. The young female was strikingly different from the male. Its bill was black instead of orange-red and yellow; the wings were also spotted with white.

LOPHOCEROS MELANOLEUCUS SUAHELICUS Neum.

The Swahili Crowned Hornbill was common at Morogoro, the type-locality for the subspecies. I extract the following note from my diary under date 3. xi. 17:—"The last few days we have had a small flock of these hornbills flying past in the morning and evening; apparently they return to the big trees along the river to roost. They usually frequent a group of trees quite close to my quarters for a short time before continuing their flight; one is soon made aware of their arrival by their shrill whistling cries. The birds do not sit together, but on separate branches, from which they make sudden and absurd dives as if they were top-heavy and could maintain their balance no longer. These little excursions are apparently after insects, though their stomachs more often contain the remains of fruit." And on 4. ii. 18:—"One of these hornbills, which flew over the camp to-day, apparently had nesting (!) material in its beak."

Whilst out in the bush one evening, I came upon an open glade, thereby disturbing the most remarkable assemblage of typical African birds which I have ever met with in so small a compass. Some twenty Hoopoes (*U. africana*) rose, and perched for a few moments in the surrounding trees; a large red-billed Hornbill (*L. m. suahelicus*) sailed off in its own peculiar dipping flight. Wood-Hoopoes (*R. c. schalowi*) raised their noisy outcry. A red-headed Woodpecker (*C. scriptoricauda*) paused in its occupation of hammering a tree, caught sight of me, and dived off with a shrill whistle, so that the glade which was so full of life a moment before was left to myself (Morogoro, 14. vii. 17).

LOPHOCEROS NEUMANNI Reichw.

A female of Neumann's Hornbill, which was being noisily mobbed by a party of small birds whilst in flight, was found to have a praying mantis in its stomach (Morogoro, 28. xi. 17).

ALCEDO SEMITORQUATA Swains.

Half-collared Kingfisher. A native brought me two beautiful nestlings; their head, back, and wings were turquoise-blue, their breasts fawn-colour (Morogoro, 28. xi. 17).

CORYTHORNIS CYANOSTIGMA Rüpp.

Malachite Kingfisher. A nest of young ones was found in the river-bank at Morogoro (1917).

HALCYON LEUCOCEPHALA Vieill.

Brown-bellied Kingfisher. Having just stepped out of my tent to walk across to my grass-hut one morning, I heard a screech and a shrill whistling cry. There was a rush of small birds about me, and I was just in time to see a South African Lanner (*Falco biarmicus*) rise from its stoop with a kingfisher in its claws and speed away to a big tree some 20 yards off. I shot the Lanner promptly, and it fell stone-dead with the kingfisher in its claws (Morogoro, 17. i. 18).

HALCYON CHELICUTI Stanley.

Striped Kingfisher. Each morning as I wake I hear a pair of small kingfishers start shrilling—this coined word seems to describe the noise better than anything. The note is not unlike “peewit,” whistled through the top front teeth, but the one bird follows up its mate’s call, so that there is one continuous sound, and at first I thought it was one bird calling. As each in turn utters its note, it spreads its wings like a fan, then raises them above the level of its head, lowers and then closes them, repeating the performance constantly. It is a pretty spectacle to witness, as the wings and tail are partially pale blue and displayed to advantage. As these little kingfishers are no larger than sparrows, and select the topmost branches of the acacia-trees for their performance, it was some time before I could find out the perpetrators of the noise (Morogoro, 26. x. 17).

HALCYON ALBIVENTRIS ORIENTALIS Peters.

Oriental Brown-hooded Kingfisher. A young lizard (*Gerrhosaurus flavigularis*) was in the stomach of a specimen shot at Dar-es-Salaam, 26. vi. 18.

COLIUS STRIATUS AFFINIS Shelley.

Mouse-bird. I believe Dar-es-Salaam Colies are referable to this race, which was found nesting with three eggs on 1. ii. 19. A nest and three eggs were taken at Nairobi on 7. v. 19.

COLIUS INDICUS PALLIDUS Reichw.

Was collected at Lumbo, where there were many flocks in July and August; its cry was like that of a plover (*Stephanibyx*). After August they were only seen singly or in pairs; this should have put me on my guard, but it was not till I happened on a nest containing three eggs that it occurred to me that the birds had disbanded for breeding. Search being made, a dozen nests were found in October, but nearly all of them contained highly-incubated eggs or young. The eggs are round, dull stony-white

in colour, streaked, blotched, or freckled with reddish-brown in great variety. The nests were all situated in thorn-trees; those that were putting forth green shoots were given preference; they had deep foundations of thorny sprays, upon which was built a cosy nest of moss, lined with fine fibres or grass. The old birds sit very close, and make no attempt to leave if merely looked at; one's hand must be approached unreasonably close before they will slip off. The clutch was invariably three (Lumbo, 28. x. 18).

SCHIZORHIS AFRICANA LEUCOGASTRA Reichw.

Many species of Plantain-eaters were collected, but none were more difficult to obtain than this species, which frequents sandy thorn-bush country. At Dodoma its harsh cry was quite a feature of the scrub-life. The "ha-haa" (emphasis prolonged on second syllable) has quite a jeering sound as the bird rises from some conspicuous perch it has chosen on the top of a thorn-tree (commanding a good view of the dense thorn patch), and, flying off for a short distance, leaves the perspiring hunter to push his way through another few hundred yards of tangled undergrowth, with the probability of a recurrence of the flight, which seems always to be accompanied by the cry (Dodoma, 5. xii. 18).

CENTROPUS MONACHUS Rüpp.

A series of skins were obtained at Dar-es-Salaam and Lumbo. At the latter place the bird was very abundant, and was found to be feeding largely on maggots in the human faeces so common in the bush about the camp. The throat plumage in most of the skins was soiled with faecal matter, and a good deal was found in the stomachs of the birds along with the maggots. The offensive smell made the birds most unpleasant to skin. I watched a bird feeding in the early morning. The natives say that the skulking habits of this Cuckoo amongst the bushes are an evidence of its sense of shame for the diet which it has adopted (Lumbo, 21. vii. 18).

At the back of my tent was a large mango-tree whose base had been wired in to form a large circular chicken-run, in which a hundred and fifty fowls were kept. Early one morning one of these Cuckoos flew into the mango-tree, and as the shadow of the Cuckoo fell across the enclosure, a panic seized the fowls, which flew and ran *en masse* against the wire-netting with a bang; there they crowded and trampled upon each in the greatest confusion. They take no notice of the crows passing overhead or perched in the nearby palms. Undoubtedly the Cuckoo was mistaken for a hawk (Lumbo, 25. ix. 18).

COCCYSTES GLANDARIUS Linn.

The Great Spotted Cuckoo, of Europe, was first seen about September 1917, when a pair flew over the camp at Morogoro. Later, a male was shot on 27. x. 17 and another on 29. i. 18. A gaudily-coloured grasshopper (*Zonocerus elegans*) was found in fair numbers in its crop.

COCCYSTES CAFER Licht.

The African Pied Crested Cuckoo was collected at Morogoro (10. xii. 17) and Lumbo (22. vii. 18); at the latter place an egg was found in the nest of a Babbling Thrush (*C. kiriki*), as already mentioned (22. x. 18).

**CUCULUS CANORUS* Linn.

The European Cuckoo was twice obtained at Morogoro in February 1918 (12th and 26th). The birds were flying across the railway-line from south to north about a mile outside the town.

LYBIUS ZOMBÆ Shelley.

Were very common at Lumbo, going about in pairs at the time of my stay. Perched on the bare branches of the baobabs, they went through the most extraordinary courting (?) antics, accompanied by cries no less unique (Lumbo, 11. vii. 18).

TRICHOLÆMA LACHRYMOSA Cab.

The Black-faced Barbet was collected at Morogoro (11. vii. 17) and Dodoma (22. xii. 18). Indian corn was found in the stomach of one of the specimens from the first locality.

TRACHYPHONUS EMINI Reichw.

Common at Dodoma, where they were going in pairs, bowing and singing to one another. A nest with a single young one was found in a hollow thorn-tree (Dodoma, 5. xii. 18).

CHALCOPELIA CHALCOSPILOS Wagl.

Green-spotted Dove. Two eggs in nest (Lumbo, 24. ix. 18).

TURTUR SENEGALENSIS Linn.

Laughing Dove. Two eggs in nest (Morogoro, 1. viii. 17).

TYMPANISTRIA TYMPANISTRIA Temm.

Two eggs in nest (Kabete, 24. v. 15).

PŒCEPHALUS FUSCICAPILLUS Verr.

I followed a Brown-headed Parrot to a blasted tree, in which was a woodpecker's hole some 20 feet from the ground. Failing to get my hand in, I returned in the evening with two boys, who chopped the hole open after half-an-hour's labour. One of the stupid fellows placed the three large white eggs in his handkerchief, put same in his pocket and slid down the tree, breaking all three, which were perfectly fresh (Morogoro, 25. vi. 17.)

The species was also collected at Dar-es-Salaam and Lumbo; at the latter place I had a young one, which was very tame and, though loose, made no attempt to fly away.

AGAPORNIS PERSONATUS Reichw.

Parties of this handsome little Love-bird flew about with great rapidity, screaming noisily; they were first met with at Kongwa. They were nesting in the holes of a baobab-tree, whose apertures they had apparently partly closed with a defence of thorns. Two eggs were found at the foot of the tree side by side, and measured $\frac{5}{8} \times \frac{3}{4}$ inches. How they came to be there I cannot say, for they contained embryos nearly ready for hatching (Kongwa, 26. iv. 17).

BUBO AFRICANUS Temm.

The Spotted Eagle-Owl was collected at Morogoro and Lumbo. At the latter place one was being mobbed by a flock of crows, which had driven it from the shelter of the bush and were pursuing it through the mangroves on the sea-shore. It alighted on a sand-bank, and was encompassed by a circle of crows, cawing with outstretched necks. The group would have made a unique photograph (Lumbo, 3. ix. 18).

PANDION HALIAËTUS Linn.

The Osprey was found nesting at Lake Naivasha with young on 16. vii. 15.

FALCO BIARMICUS Temm.

A female of the South African Lanner was shot whilst devouring a chicken in the topmost branches of a baobab-tree (Morogoro, 11. xii. 17). As already mentioned, the cock-bird was shot with a Kingfisher in its claws (Morogoro, 16. i. 18).

FALCO CUVIERI Smith.

The African Hobby was shot while eating a Yellow Wagtail (*Motacilla campestris*) (Morogoro, 31. x. 17).

DISSODECTES DICKINSONI Slater.

Dickinson's Kestrel, shot at dusk in a baobab-tree, was found to have beetles, locusts, and a praying mantis in its stomach (Morogoro, 18. vii. 17).

CERCHNEIS TINNUNCULUS Linn.

The Common Kestrel was very common at Morogoro and Dodoma; at the latter place particularly it was rarely that there was not one in sight, usually sitting on *Euphorbia* bushes, which were scattered about the thorn-bush. One which I had in captivity thrived well on the remains of specimens which I was preserving. On one occasion, hearing a succession of screeches outside my tent, I ran out to see another Kestrel rise from the cage and fly to a tree near by. The captive bird was clinging to the wire-netting of its extensive run and screeching, being answered by the bird in

the tree for some minutes. Nearly a month later a flight of locusts visited the neighbourhood, and my bird exhibited such excitement that I released it to see what it would do. Flying straight to a large tree in the middle of the camp, it captured a locust; for the next half-hour it remained about the tree, taking short flights after the insects and returning to its perch to eat them. The following were found in the stomachs of specimens collected:—A lizard (*Eremias spekii*) and skink (*Mabuia varia*) and many locusts in one (Morogoro, 4. xii. 17); a lizard (*Latastia longicaudata*) (Morogoro, 5. ii. 18); a small bird (Dar-es-Salaam, 17. xi. 18); a rat and lizard and a parasitic worm (*A. rectovaginata*) (Dodoma, 6. xii. 18).

PERNIS APIVORUS Linn.

The Honey-Buzzard was twice shot at Morogoro (23. ii. & 1. iv. 18); both were females, the former with grey head, the latter with brown. In the stomach of the former were found a large number of pupæ and grubs of the grey hornet (*Belonogaster griseus*). It has been said that the feathers around the eyes of this Buzzard protect it from stings, but anyone who has seen the long stings of *Belonogaster* might be forgiven for doubting it.

ELANUS CÆRULEUS Desf.

The Black-shouldered Kite—a rare visitor to England—is comparatively common in the East African bush, where its dove-coloured plumage makes it look something like a sea-gull when on the wing. Specimens were obtained at Nairobi, Dodoma, Morogoro, and Lumbo. In the stomach of one was a mouse skull, beautifully cleaned and undamaged (5. ii. 18).

AQUILA RAPAX Temm.

The Tawny Eagle was shot at Morogoro (9. ii. 18) and Dodoma (6. xii. 18). The former had its stomach full of putrid goat's flesh, and the latter with bullock flesh and offal thrown out from the slaughter-house, where it was keeping company with vultures and kites. It had a parasitic worm (*Ascaris depressus*) in its stomach. On the road from Bissel to Longida, I rode up to an Eagle which was feeding on a dead mule. It allowed me to approach within 30 feet and, when I reined-up, looked at me for a moment, and then went on coolly tearing off strips of flesh with its beak, which it then transferred to its claws, to be held whilst rendered still smaller. In the Kedong Valley two young Eagles, just fledged, were seen sitting on the rocks at the base of the towering cliff, where their nest evidently was (17. vii. 15).

LOPHOAËTUS OCCIPITALIS Daud.

This Crested Eagle was found to be nesting in February. The nest was situated in a tree at a height of 80 feet from the ground. The cry of the old birds when one approached reminded me of an

English Sparrow-Hawk's note when disturbed. A few days later the birds began sitting. It was quite impossible to reach the nest, not merely because there was not a branch for 60 feet up, but because a swarm of bees nearly two feet in length were under the junction of the first branch and the trunk, whilst a second swarm hung from the big limb on which the nest was placed, about 30 feet from the main stem (Morogoro, 20. ii. 17).

MELIERAX GABAR Daud.

Gabar Goshawk. The feet of three birds were in the crop and stomach; they appeared to be those of Grass-Warblers (Morogoro, 2. vi. 17). The melanistic form was obtained a few days later at the same spot (Morogoro, 5. vi. 17).

ASTUR SPHENURUS Rüpp.

Stomach of Rüppell's Goshawk was found to contain locusts (Morogoro, 12. vii. 17).

ASTUR TACHIRO (? NYANZÆ Neum.).

Probably it was this race of the African Goshawk which I obtained at Nairobi (20. x. 15) and Morogoro (20. xi. 17). I found the nest of this species on November 17th; it was situated at the top of a tree whose bark was studded with thorns; the tree was on the banks of a stream in thick bush. On November 20th, I revisited the nest at daybreak and saw the hen feeding the young; she was very shy and, being disturbed, did not return. In the evening she was on the nest, but slipped silently away as we approached. We had brought ropes, which assisted the native in his ascent; climbing was a very tedious business, as the thorns had to be cut away all up the trunk. The two young in the nest were of very different size, and one would think there was quite a week's difference in their ages; the smaller bird was still in the down stage.

After removing the young, I sat down in the gathering gloom and watched the dark outline of the nest silhouetted against the sky; an indistinct "something" sailed past, and the next moment the mother could just be seen alighting on the edge of the nest. She had scarcely time to close her wings when I fired, and she fell forward dead into the empty nest. This involved another climb for the boy. After gathering up the rope, hatchet, and spoils we stumbled back through the bush to camp, guided by the gleaming thread of water which lay in the river bottom.

I skinned the bird at once—it was in fine condition—and then fed the young with the flesh cut into strips; they ate with avidity. Next morning I fixed up a very fair imitation of their home on the top of a bush in the python's cage. On the 28th they began to feed themselves, and were fond of standing up in the nest.

They held down scraps of meat in their claws, tearing it into still smaller scraps with their beaks. Up to this time they were fed on the flesh of monkey, lemur, rat, bullock, kite, hawk, egret, hornbill, kingfisher, roller, wheatear, wagtails, weaver, crow, puff adder, and chameleon. All these seemed to agree with them except that of the bullock and the chameleon fat, both of which they disgorged.

On December 1st the larger of the young Goshawks was just beginning to fly about the cage when it disappeared; the 12-foot python must have eaten it. I had kept him so gorged with dead fowls that I never imagined he would molest them. The following day, hearing my monkeys making a great outcry, I hastened out to find the python sliding silently towards the bush on which the nest had been placed. I removed the remaining hawk just in time, for on passing back to my tent I saw the python had raised itself to the nest over which he was running his snout. Having nowhere else to keep it, I left the bird in an open grass hut.

On December 7th it took trial flights about this hut. When the two young ones had been in the python's cage I had been much puzzled by finding their excreta about 4 feet from the nest. Now, I observed the remaining bird hop out of the box in which it was, turn round on the edge, cock up its tail and discharge the fluid "whitewash" to a distance of 3 feet. This shows how they are able to keep the nest clean. It disgorges pellets of fur $1\frac{1}{2}'' \times \frac{5}{8}''$ in size.

The young bird was not in the least like its parent, having large pear-shaped brown blotches on the breast like *F. biarmicus*. The mother, of course, has transverse fine striations. On December 13th I missed the bird; the night before it had flown about 500 yards and stayed out all night. Someone accidentally discovered it in a rubber-tree, and, in trying to recover it, struck it with a butterfly net, which caused its death the following night, as a small clot of blood was found on the spine when dissected.

BUTASTUR RUFIPENNIS Sundev.

A Buzzard Eagle was fairly plentiful at Morogoro and Dodoma. The stomach of a specimen examined contained scarabs (Morogoro, 31.i.18).

CIRCAËTUS PECTORALIS Smith.

In the stomach of a Black-breasted Harrier Eagle was a pellet of rodent fur, in its gullet was a Hissing Sand Snake (*Psammodphis sibilans*) 2 feet in length, its tail being doubled back for about 9 inches; it had been swallowed head first. Curiously enough, four days earlier I stalked a handsome Barred-breasted Eagle in the same tree in which I shot this specimen. On raising my head when within range I lost sight of it, but a

minute later it rose from the mealies two hundred yards from the tree, with a snake in its talons. It came so low over my head that I was able to recognise the snake as a Hissing Sand Snake. The Eagle then ascended in great spirals, taking the snake from its talons with its beak and gulping it down as it ascended. I was so interested that I forgot to shoot till the bird had finished, and then when I did fire, missed, so that I was unable to identify the Eagle, which was an unfamiliar one (Morogoro, 4 & 8. vi. 17).

ASTURINULA MONOGRAMMICA Temm.

Variously known as the African Buzzard-Eagle, Lesser Whistling Hawk, and One-streaked Hawk. The first name from a popular point of view is a very absurd appellation conveying the idea of great size. One-streaked Hawk seems to me the best popular name conveying some idea of the bird. A female shot at Morogoro had a Side-walking Spider (*Palystes* sp.) in her stomach. A male was obtained a few months later (Morogoro, 2. iv. & 9. vii. 17).

CIRCUS MACRURUS Gmel.

In the stomach of a Pale Harrier was found a young snake (*Rhamphiophis oxyrhynchus*) and a skink (*Mabuia striata*), whilst in that of a second were three species of lizards (*Eremias spekii*, *Gerrhosaurus flavigularis*, and *Mabuia striata*). Here the Pale Harrier seems to prefer a reptilian diet (Morogoro, 31. i. & 28. ii. 18).

MELANOPHOYX ARDESIACA Wagl.

The Black Heron feeds along the shore at Dar-es-Salaam when the tide is out; it was there very difficult of approach. On one occasion, as I was returning home, one of these small Herons flew over the causeway and dropped on a muddy flat not far from where there was some grass. I was on the far side of the water and immediately made for the place. The bird I found was performing some very curious antics. Running swiftly forward for about six steps, it abruptly halted, placed its beak to the ground, and raising its wings, brought them forward and downwards, so that for a moment its head was entirely hidden by the outspread wings which were brought down to the mud. This it repeated again and again until, reaching the water, it turned about and practised its steps in the opposite direction.

I imagined that it was a cock performing some courting display, but on skinning found it to be a hen. Taking advantage of each moment when its head was concealed, I wriggled forwards through the grass till within range, when I dropped it, very dead indeed, but a perfect specimen (Dar-es-Salaam, 1. vii. 18). Six months later I saw these birds performing the same antics on the fore-shore opposite the ruined Governor's Palace.

ARDEA MELANOCEPHALA Vig. & Child.

The Black-headed Heron was met with at Dar-es-Salaam (26. vi. 18), Morogoro (29. xi. 18), and Tabora (13. xii. 18). At Tabora they were nesting in a great tree in the midst of cultivated ground, the birds winging their way home of an evening from their feeding grounds. One of the Morogoro specimens was shot stalking about a stubble field, and its stomach on examination was found to contain the remains of rats, apparently five in number.

ARDEA CINEREA Linn.

The Common Heron of Europe was twice collected at Dar-es-Salaam (5. vii. & 19. xi. 18), the circumstances being as follows:—

Just 60 feet below the bank on which our house is built, and perhaps a hundred yards away, lies a one-time estuary of the sea; the fresh water is now shut off from the sea by a causeway, but a series of large pipes still allow of communication between the two at high tides, after which infusion the water is brackish. Here various waterfowl are wont to feed on the freshwater shrimps and small fish, including the Mud Skipper (*Periophthalmus* sp.), which is present in large numbers; while at daybreak each morning a pair of herons are to be seen standing in the shallows.

Every morning for eight days past I tried to stalk them, but they were too wary, taking to wing whilst one was still a hundred yards off. Once disturbed the birds would circle round in the blue above, and then, heading over the causeway, would fly seawards, doubtless to recommence feeding in one of the quiet bays or lagoons with which the coast abounds. However early I arrived, the birds were there before me, but determined to succeed this morning I started out at 4 o'clock.

When I left the house it was pitch dark except for a waning moon whose faint beams were reflected on the shimmering surface of the dark water. Stumbling around the estuary in the spongy soil where crickets were shrilling away, I reached the far end, and was carefully withdrawing my feet from a particularly boggy piece of ground, when suddenly I became aware of the presence of a bird standing motionless in the shallow water scarcely 30 feet away.

I hesitated for a moment, lest in the deceptive light the bird might be nearer or farther than it appeared, as I was anxious not to damage the skin; also the report of the gun echoing across the water might disturb the slumbers of our neighbours occupying the houses along the opposite bank. Ere I had made up my mind the heron rose with a hoarse squawk, and, spreading its great wings, disappeared into the darkness. A smaller species arose and settled again further out.

Pursuing my way round the estuary I arrived at an old stranded buoy close to which there was a favourite fishing-ground

of the birds. Sure enough, before I was within fifty yards of it, the bird again arose and departed across the water. Its mate generally fished near a stone some little way further along the bank, and there I espied it; the recognition was mutual, and it winged off to a promontory where I could just distinguish it standing in the water.

In pursuance of my original intention, I now lay down in the wet grass within range of the stone and here waited for half-an-hour until day broke behind a row of tall palms, which later formed a lovely picture silhouetted against the rosy dawn. The grass, however, was very short owing to the activities of the Sanitary Corps, so that as the light increased, realising how conspicuous I must soon appear, I crawled away to a shallow irrigation ditch fringed with longer grass and within range of the buoy. Half-an-hour passed which the mosquitoes relieved of all monotony. It was quite a new point of view to see them arrive like so many vultures outlined against the sky, and then to alight on the stems of grass which were already burdened with dew.

At 6 A.M., reveille sounded and some K.A.R. askaris from a neighbouring camp came down to wash clothes, but instead of taking to flight at their approach, my heron, now clearly to be seen across the shining water, sedately stalked further out. My patience well nigh exhausted, I rose on one elbow, and, seeing how light it had become, was on the point of giving up when another native came down to the opposite bank, and as it appeared probable that he would pass near the bird I resolved to wait a little longer and crouched low again.

A hoarse cry from the Heron caused me to look up; afar I beheld the big bird rising from the water. Down I ducked, face and hand well into the grass, not daring to move lest I should attract attention. A few moments of anxious suspense, then swish, swish, swish sounded its pinions close overhead, as it circled round preparatory to alighting. Then came a gentle splash as it struck the water.

Very cautiously I raised my head and looked through the grass stems, where, not 40 feet away, stood my victim, suspiciously turning its head from right to left as it strode along. Being cramped and stiff, I feared to raise my gun lest I should muddle things, and the weary hours of waiting be wasted; so again I lay quiet until, in its walk, the bird should come into line with the barrels of the gun as it lay on the ground—bang!

Overhead a raucous squawk and the sound of wings! What then. Surely I could not have missed. Hastily and awkwardly I rose to my feet. No! There lay the victim of my murderous early rising floating quietly on the water, stone dead; a shot had passed through its neck and a single spot of blood showed on one leg. It floated listlessly to and fro as I waded out to bring it in. Far out towards the sea a speck in the sky was all that was to be seen of the other bird, which, all unknown to me, had come up

close behind where I was lying, and, at the sound of the shot, had risen with a cry. The dead bird measured 59 inches from tip of beak to the tip of its longest claw (Dar-es-Salaam, 5. vii. 18).

SCOPUS UMBRETTA BANNERMANNI C. Grant.

East African Hammer-head. At Dar-es-Salaam I found a nest from which the young had just flown, according to the natives living about 30 feet away. They said that the bird had bred there for many years; its nest, in the fork of a tree, was scarcely 10 feet from the ground and easily accessible. I was surprised that the thrifty natives had not pulled down the load of sticks for firewood (8. ii. 19).

CICONIA CICONIA Linn.

The White Stork was only met with once and then in thousands. It was at Morogoro (19. ii. 18), when about 4 P.M. my attention was drawn to a great flock of birds high in the air; others were coming round the western spur of the Uluguru Mtns. from a S.W. direction. It was a most wonderful sight, and reminded one of the Gannets flying about the Bass Rock, with this difference: that in lieu of the limitless sea for a background, one had the forest-clad slopes of the Uluguru reaching up into the clouds. And over the top and down the slopes, or circling mid the clouds, still the birds came, the specks grew larger and larger, then showed white and black until finally they were recognisable as storks.

Thousands upon thousands came sailing through the air without visible effort. By scores they settled in the trees, stiff and erect, their white plumage against the forest foliage forming a not easily forgotten picture. It was very evident what had brought them, for they pursued the locusts (which had appeared the day before) on the wing, swallowing them in wholesale fashion. In flight they carried their red legs straight out behind, but when intending to alight, they were allowed to hang down and swing freely to and fro like a parachute coming to earth. There is a curious mechanism of the knee-joints, necessitating the leg being out straight or bent at right angles; in either position it locks. After death, if the leg was placed in any other position, it flew to one or the other of these of its own accord.

Millions upon millions of the locusts continued steadily driving past like rain; the air was vibrant with the noise of their flight and with the steady pinion-beats of the pursuing storks. Others of the insects settled on the vegetation, which was a-rustle with them as they hopped, or took short flights, out of one's way. The measurement of the outstretched wings of one of the storks was 6 feet 3 inches.

ABDIMIA ABDIMII Licht.

The following morning the storks were still about, and circled over the hospital, where they were made targets of by a number

of foolish officers, who blazed away at them with service rifles. One of those shot was brought to me, and I recognised it as the White-bellied Stork (*A. abdimii*). When one considers what myriads of locusts such thousands of birds must consume—the stomachs of those shot being distended with the insects,—what folly it is to destroy them needlessly.

Someone reported having seen a Secretary Vulture among the storks, which were picking up locusts among the stubble of a mealie-field. Numbers of hawks, eagles, and rollers were harrying the locusts also.

CREX CREX Linn.

The Corn-Crake or Land-Rail was taken at Nairobi during the first nine days of May 1916 and 15. iv. 19.

COTURNIX DELEGORGUEI Hartl.

A Harlequin-Quail was obtained under rather peculiar circumstances, and shows how close these birds will squat. I was walking across a patch of grass-grown land in Nairobi when something rustled at my very feet; jumping to one side, expecting to see a snake, I found it to be a quail that I had trodden upon inadvertently (Nairobi, 2. vii. 15).

The following records of European migrants may be of interest:—

CHARADRIUS ALEXANDRINUS Linn. Kentish Plover. Dar-es-Salaam (13. i. 19).

CHARADRIUS HIATICULA Linn. Ringed Plover. Nairobi (12. x. 15); Dar-es-Salaam (14. i. 19).

TRINGA SUBARQUATA Güld. Curlew-Sandpiper. Dar-es-Salaam (14. i. 19).

TRINGA MINUTA Leisl. Little Stint. Lumbo (5. x. 18).

CALIDRIS ARENARIA Linn. Sanderling. Dar-es-Salaam (15. i. 19).

TOTANUS HYPOLEUCUS Linn. Common Sandpiper. Lumbo (27. vii. & 4. ix. 18).

NUMENIUS PHÆOPUS Linn. Whimbrel. Dar-es-Salaam; often seen in January 1919, but not collected.

NUMENIUS ARQUATUS Linn. Curlew. Dar-es-Salaam (7. vi. 18); Lumbo (25. vii. 18).

HIMANTOPUS HIMANTOPUS Linn. Black-winged Stilt. Tabora; seen only (11. xii. 18).

HÆMATOPUS OSTRALEGUS Linn. Oyster-catcher. Dar-es-Salaam; often seen during 1918.